

1 WHAT IS CLAIMED IS:

2 1. A current detector for detecting or measuring an electric
3 current, comprising:

4 (a) a Hall-effect device for generating a voltage proportional to mag-
5 netic field strength;

6 (b) two current path terminals for the inflow and outflow, respec-
7 tively, of a current to be detected or measured; and

8 (c) a metal-made baseplate mechanically supporting the Hall-effect de-
9 vice, the baseplate being slotted to define a current path
10 having a pair of opposite extremities connected respectively
11 to the current path terminals, the current path being con-
12 tiguous to the Hall-effect device for causing the same to
13 generate a voltage proportional to the magnitude of a cur-
14 rent flowing through the current path.

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16 2. The current detector of claim 1 wherein the current path
17 in the baseplate is in the shape of a U.

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19 3. The current detector of claim 2, wherein the Hall-effect
20 device has a primary working part for the development of the voltage
21 proportional to the magnitude of the current flowing through the current
22 path in the baseplate, the primary working part being substantially thor-
23 oughly contained within the U-shaped current path as seen in a direction
24 normal to the baseplate.

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26 4. The current detector of claim 2 wherein the baseplate has
27 formed therein at least one slit bounding one side edge of the U-shaped
28 current path, and at least one other slit bounding another side edge of
29 the current path.

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31 5. The current detector of claim 4 wherein said other edge of
32 the current path is bounded by a plurality of straight slits cut into the
33 baseplate.

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35 6. The current detector of claim 2 wherein the U-shaped cur-

1 current path is defined at least in part by a J-shaped slit cut into the
1 baseplate.

3 7. The current detector of claim 2 wherein the U-shaped cur-
4 rent path is defined at least in part by a pair of straight slits cut into
5 the baseplate and extending in parallel spaced relationship to each other.

7 8. The current detector of claim 2 wherein the U-shaped cur-
8 rent path is defined at least in part by a single straight slit cut into
9 the baseplate.

11 9. The current detector of claim 2 wherein the baseplate is a
12 generally rectangular piece of sheet metal, and wherein the current path
13 terminals are integrally joined to one edge of the baseplate.

15 10. The current detector of claim 2 wherein the baseplate is a
16 generally rectangular piece of sheet metal, wherein one current path ter-
17 minal is integrally joined to a first edge of the baseplate and directly
18 connected to one end of the U-shaped current path, and wherein the
19 other current path terminal is integrally joined to a second edge, opposite
20 to the first edge, of the baseplate and connected to the other end of
21 the current path via an extension thereof.

23 11. The current detector of claim 10 wherein the baseplate has
24 at least one slit cut therein from the first edge thereof to bound one
25 side edge of the U-shaped current path, and another slit cut therein
26 from the second edge thereof to form the extension of the current path.

28 12. The current detector of claim 11 wherein said one edge of
29 the U-shaped current path is bounded by a J-shaped slit.

31 13. The current detector of claim 11 wherein said one edge of
32 the U-shaped current path is bounded by a pair of straight slits cut
33 into the baseplate so as to extend in parallel spaced relationship to each
34 other.

14. The current detector of claim 1 further comprising an insu-
1 lating layer interposed between the baseplate and the Hall-effect device.
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15. The current detector of claim 14 further comprising a
2 shielding plate interposed between the Hall-effect device and the insulat-
3 ing plate.
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16. The current detector of claim 1 further comprising a plural-
2 ity of lead terminals for connecting the Hall-effect device to external cir-
3 cuits, the lead terminals being made from the same sheet metal as is the
4 baseplate.
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17. The current detector of claim 16 further comprising an en-
2 closure of electrically insulating material enveloping all the listed compo-
3 nents of the current detector but parts of the current path terminals and
4 the lead terminals.
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18. The current detector of claim 1 wherein the Hall-effect
2 device is formed in a semiconductor substrate in which there is also
3 formed an amplifier for amplifying the output voltage of the Hall-effect
4 device.
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19. A current detector for detecting or measuring an electric
2 current, comprising:
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- 24 (a) two Hall-effect devices each for generating a voltage proportional
25 to magnetic field strength;
- 26 (b) two current path terminals for the inflow and outflow, respec-
27 tively, of a current to be detected or measured; and
- 28 (c) a metal-made baseplate mechanically supporting the Hall-effect de-
29 vices, the baseplate being slotted to define a current path
30 having a pair of opposite extremities connected respectively
31 to the current path terminals, the current path being conti-
32 guous to the Hall-effect devices for causing the same to
33 generate voltages proportional to the magnitude of a current
34 flowing through the current path;
- 35 (d) whereby the magnitude of the current flowing through the cur-
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1 rent path is detectable in terms of the sum of the abso-
2 lute values of the output voltages of the Hall-effect de-
vices.

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24. The current detector of claim 23 wherein the output circuit
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2 comprises:
3 (a) two amplifiers connected respectively to the Hall-effect devices;
4 and
5 (b) arithmetic means connected to the amplifiers for providing an
6 output representative of the sum of the absolute values of
7 outputs from the amplifiers.
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